# Optics

*The All-Optical Threshold Device*

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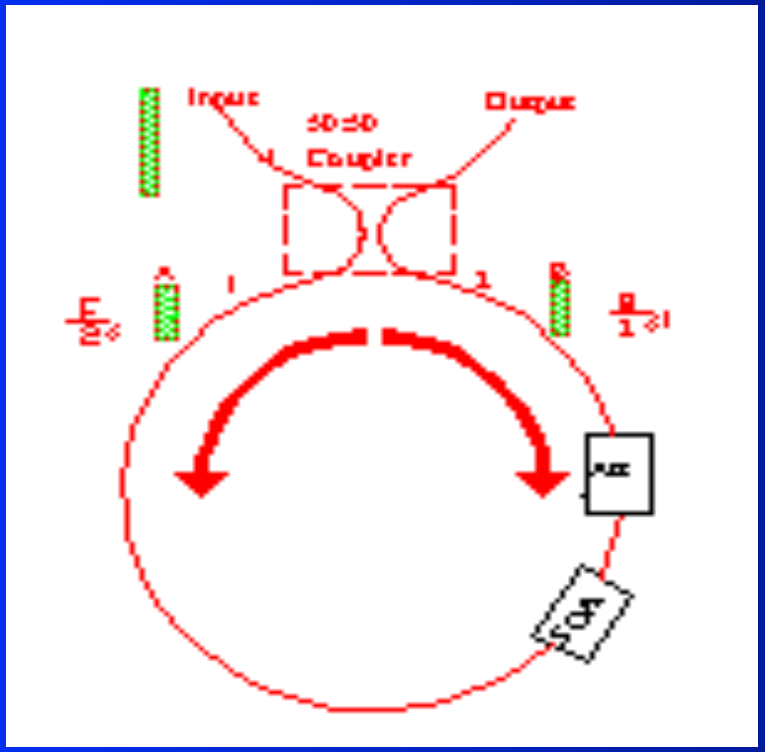
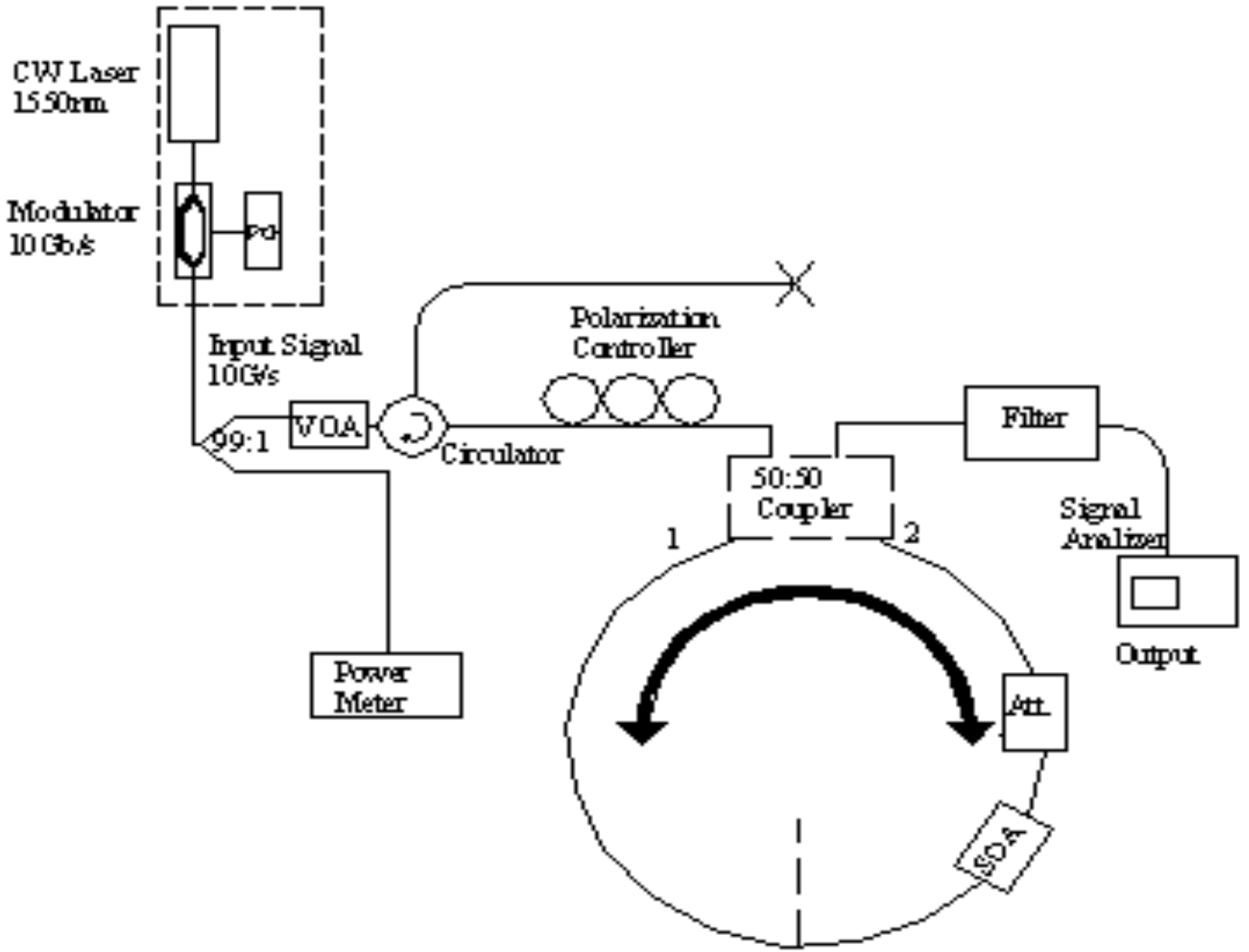
# All-Optical Threshold Device

- *A device that can discriminate between two intensity levels is a Threshold Device*

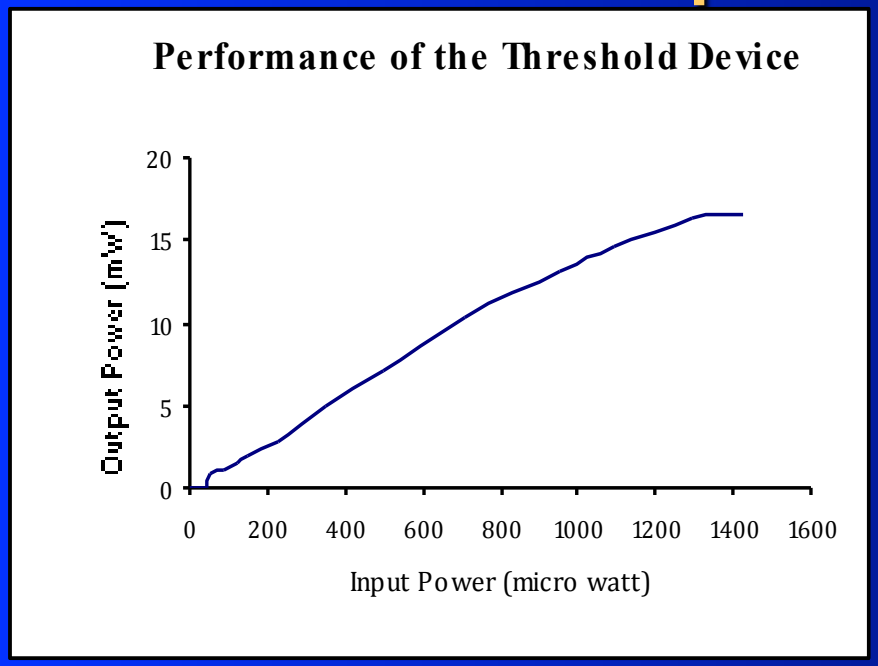


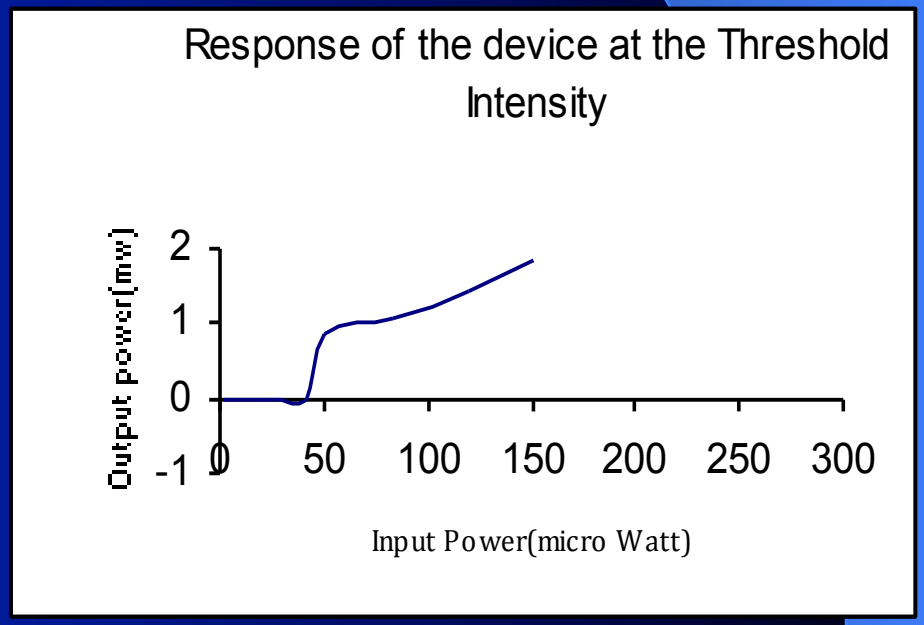

- Loop mirror contains SOA, attenuator, and 50:50 coupler
- Phase change occurs in clockwise beam during transmission in 50:50 coupler
- Destructive or constructive interference at the ports
- To set a threshold value, attenuator is set to constant value while SOA is varied

# Experimental Setup



# Graphical Results



# Experimentation and Results

- SOA set to three different gain levels
- VOA varied periodically to change input intensity
- Threshold values of all-optical threshold device were inversely proportional to the value of the SOA
- In future, threshold device can be used for optical computing
  - Faster
  - More efficient